Developing a Measurement Scale for the Evaluation of AR-Based Educational Systems

A. Balog, C. Pribeanu

National Institute for Research and Development in Informatics – ICI Bucharest,

Bd. Mareşal Averescu Nr. 8-10, 011455 Bucureşti, Romania

Abstract: Educational systems based on the augmented reality (AR) technology are creating a new kind of user learning experience by bringing real life objects into a computer environment. The mix of the real and virtual requires designing new interaction techniques which have to be tested with users early in the development process. For these new e-learning systems to be effective traditional usability evaluation is not enough. Their adoption of AR-based e-learning systems in schools also requires investigating to which extent they are useful and motivating for students. This paper presents a measurement model for the usability evaluation of AR-based e-learning systems that is targeting the educational and motivational values. The model was developed during a European research project and is inspired from the technology acceptance theories. The scale development was carried on in a methodological approach starting with the definition of a conceptual model from which an initial scale of 28 items was generated. The evaluation of the measurement model which is based on a confirmatory factor analysis resulted in a reliable scale with 19 items organized into five constructs.

Keywords: technology acceptance models, AR, e-learning, usability evaluation, user experience